

MODIS sensor Working Group (MsWG) Meeting Summary

Mar 21, 2007

Attendance: Jack Xiong, Gary Toller, Bill Barnes, Stuart Biggar, Gerhard Meister, Chris Moeller, Bryan Breen, Scott Blanchard, Eric Vermote, Zhengming Wan, Aisheng Wu, Xiaobo Xie, Robert Wolfe, Vince Salomonson, Sadashiva Devadiga, James Kuyper, Brian Wenny

Scheduled Agenda

Item 1: Recent L1B LUT delivery

- Aqua forward update – 5.0.7.19 (3/12/07) – m1, RVS
- Terra forward update – 5.0.6.27 (3/20/07) – reset Band 2 QA flags

Item 2: Instrument status

- Terra and Aqua MODIS are in nominal operations.
- Terra Non-recoverable data loss – Due to a launch supported by the TDRSS network, multiple contacts with TDS were lost. During an emergency AGS contact, an X-band receiver fault resulted in a data loss of ~1 hour, on the second AGS contact a lockup loss was on the order of a few seconds.
 - o 2007/079 00:46:18 – 01:47:30 GMT (Mar 20, 2007)
 - o 2007/079 02:33:24 – 02:33:28 GMT (Mar 20, 2007)
- The first Aqua Inclination Adjustment Maneuver was completed on schedule (3/14/2007) with no reported problems. The remaining IAMs are expected to following the previously announced schedule. The remaining maneuvers are scheduled for approx. 1600 GMT on:
 - o 2007/087 – Wed. 3/28
 - o 2007/101 – Wed. 4/11
 - o 2007/114 – Wed. 4/24
 - o 2007/128 – Wed. 5/08 (backup)
 - o 2007/135 – Wed. 5/15 (backup)

Item 3: MCST recent activities

- Internal Review – MCST conducted an internal review of all calibration/trending related activities, algorithms, documentation and procedures: Lunar (2/7/07), TEB (3/13/07), RSB (3/15/07). During this process a number of areas were identified needing improvement and clarification, in particular documentation of algorithms and procedures. Also several technical issues needing further investigation were identified and will be discussed at future MsWG meetings.
- Special LUT delivery for Ocean Group – MCST prepared a Terra LUT for the Ocean group (Delivered 3/21/07). **Gerhard Meister** requested some modifications to the RVS table and **Xiaobo Xie** will prepare the revised LUT for delivery.
- Space View DN analysis – the trending plots presented in the internal review showed that the SV DN has dropped to ~ 50 counts for some bands. **Jack Xiong** requested IOT to take a look at the SV trending data.
- **Jack Xiong** presented a briefing on the recent Band 2 QA flag setting incident and response. Band 2 Detectors 29 & 30 subframe 1 have a known crosstalk problem which has been brought to MCST on several occasions. After the last MODIS Science Team meeting, MCST made the decision to apply one of the approaches discussed in earlier MsWG meetings (set the QA flag for these two detectors as ‘inoperable detectors’). The LUT update was delivered on Jan 19, 2007 and went into production on Jan 27, 2007. A mistake was made in not requesting a science test and notifying the science disciplines that the QA flag had been changed, as no agreement had been reached on a solution to this issue in prior MsWG meetings. Typically QA changes can be made by MCST without MsWG approval, however in this case since it

was a known issue and had been discussed without resolution previously by MsWG, MCST should have sought approval making the QA LUT change. The impact on the science products was brought to MCST's attention on 3/14/07. A LUT update resetting the Band 2 QA flags was put into production on 3/20/07. [See slides in agenda ppt package for details.]

Group Comments Summarized:

In general all present were satisfied with 1) the decisions and timely response of corrective actions once the problem was identified, and 2) the areas on which to focus for improvements in QA procedures.

- Greater clarity needed in specifying what constitutes a 'special case' LUT update, which will require filing a PCR. Who decides what is a special case?

Jack Xiong will reword MCST procedure accordingly. Anything other than a routine forward LUT update intending to capture changes in detector response and/or performance (e.g. m1, RVS, fixed b1, noisy/inoperable detector QA flags) will require a PCR. In future for the case of noisy/dead detector flags – MCST must notify MsWG that a flag change has been made and file a PCR retroactively.

- **Vincent Salomonson** noted that the decision to flag the detectors as inoperable seemed a bit severe and it is probably best if the flags were left as they were pre-incident and MCST/MsWG investigate other approaches for inclusion in a possible Collection 6.

All present agreed that this was the most prudent course of action. **Jack Xiong** will begin compiling list of possible improvements that can be made for a Collection 6. Other issues will need to be revisited also. At this time it is not expected that a Collection 6 can be put in place earlier than the end of Collection 5 land reprocessing (~ Oct 2008), but this is the time to start thinking about what improvements can be made in the L1B algorithms.

- An additional area of concern was that this Band 2 issue was not found in any of the QA processes in place at multiple levels of the data production.

This incident revealed deficiencies in both the communication between MCST, SDST and science disciplines and also the QA processes employed. MCST does perform a pre-production check of L1B data processed with the current and proposed LUTs, to assess that the changes are on the order expected. However, MCST only tests data for each Band's native resolution, not aggregated products. Also there is no MCST QA after the updated LUT has entered production. MCST is reviewing their procedures and will add these capabilities to their QA activities. In future the test granules and results will also be made available on-line for other groups to review.

Robert Wolfe and **Sadashiva Devadiga** are checking the land QA processes to identify deficiencies. Several issues have been found and will be addressed. In general, the global browse QA is updated daily, however it is at a low resolution (5 km) so this problem would not be easily seen, if at all. Improvements will be made in communication and response to user feedback from NSIDC & EDC, for example.

Item 4: Around the Table

- **VS:** Terra and Aqua proposals were turned in last Friday and look very good.

Next Meeting: ~Apr. 4, 2007